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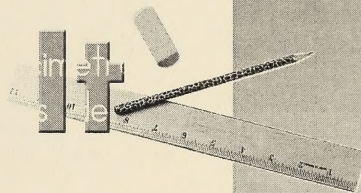


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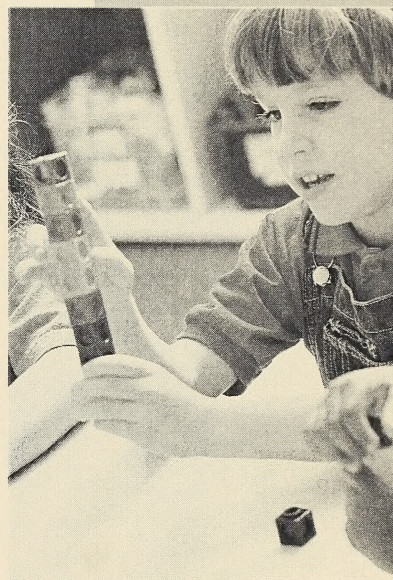
Mathematics

Module 6

Measure It



Home Instructor's Guide: Days 1–9 and Assignment Booklet 6A



Learning
Technologies
Branch

Alberta
LEARNING



Grade Two Mathematics
Module 6: Measure It
Home Instructor's Guide Days 1–9 and Assignment Booklet 6A
Learning Technologies Branch
ISBN 0-7741-2012-6

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This document is intended for	
Students	✓
Teachers	✓
Administrators	
Home Instructors	✓
General Public	
Other	



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Module 6: Measure It

Introduction

This module focuses on estimating, measuring, and comparing length; the value of money (using standard units); and other measures including area, mass, volume, capacity, and temperature (using primarily nonstandard units).

Measurement has many practical applications in the student's daily life. Something is always being measured: calories, distance, length, weight, temperature, money, and so on.

Measurement connects with other subjects: science, physical education, art, music, social studies, and language arts. Identifying these whenever they occur ensures the student gains an appreciation of the role measurement plays in society.

Measuring allows the student to be actively involved in learning, especially since hands-on activities dominate.

To reinforce measurement, provide the student with daily opportunities for measuring. Discuss the amount of liquid the student drinks, the rise and fall of the temperature, the length and weight of everyday objects, the mass and area of items in and around the home. In this way, the student begins to see how useful mathematics is in everyday life.

Encourage the student to work on all the Extension Activities.

Materials You Need

- existing manipulatives in the student's Math Box
- at least 20 sheets of paper
- pencil, pen
- crayons
- cotton balls
- string (at least 400 cm long) or a ball of yarn
- 100 interlocking cubes (unifix, linking base ten unit cubes, centimetre cubes)

- 30-cm ruler
- metre stick or centimetre measuring tape
- deck of playing cards, or hockey cards or any other type of cards
- sheets of 4 x 11 $\frac{1}{2}$ paper (standard 8 x 11 $\frac{1}{2}$ paper cut in half)—enough to cover the surface of the student's desk
- dominoes
- cereal box
- a newspaper (cut the double sheets in half)
- a variety of containers (juice box, pop bottle, margarine tub, ice cream or yogurt container, milk carton, ice-cream pail, baby-food jar, jam jar, soup can)
- a balance scale
- thermometer
- pennies, nickels, dimes, quarters, loonies, or play money
- materials in the Appendix (Have the materials cut out and ready in the Student Folder prior to the lesson.)
 - square, triangle, and rectangle shapes
 - money cards
 - coin manipulatives (if pennies, nickels, dimes, quarters, loonies, or play money are not available)

Daily Summary

Day 1

This is a review of Module 4.

Answers

1. a. square, 4, 4
b. triangle, 3, 3
c. rectangle, 4, 4
d. circle, 0, 0
2. a, c, g, h
3. a. cylinder
b. cube
c. pyramid
d. cone
e. sphere
4. a. cube
b. sphere
c. cylinder
d. cone
e. pyramid
5. a. sphere 0, 0, 0
b. pyramid, 5, 8, 5
c. cylinder, 2, 2, 0
d. cube, 6, 12, 8
e. cone, 1, 1, 1
6. a. 12, 8
b. 8, 5
7. A sphere has no edges or vertices.

Day 2

Day 2: Lesson 1

The comparison activities in this lesson are a review of length.

Prepare ten items of different lengths: paper clip, thumb tack, nail, pencil, crayon, safety pin, dried pea, pastas of different lengths, eraser, and other objects. Have the student select one object as a reference object against which he or she will compare the other nine objects. The student will place these into the three boxes labelled, Shorter, Same, and Longer. Ensure that the objects are sufficiently different to place in the three boxes.

Day 2: Lesson 2

Discuss the term *length* and how it is used to mean how long something is.

Day 2: Lesson 3

Draw a line one centimetre long. Discuss how you did it and the markings you followed on the ruler. Show how to measure with a ruler. Ensure the student understands that the measurement begins at zero or the edge of the ruler and not at number 1.

Some of the objects one centimetre long or wide might be a paper clip, finger, wooden craft stick, pencil, eraser, blocks, pasta, etc.

Draw the length of the lines indicated (5 cm, 10 cm, and 20 cm). Ensure the student watches and understands as you do so. For 30 cm, have the student mark it off on the ruler and observe how long it is.

Day 2: Lesson 4

Have the student show the equations and solve how many centimetres difference Jasper and Elena's estimates and measurements showed.

Explain how measuring a curved object with a straight ruler is difficult to do. Show how a string can be used to measure a curved object, like the student's arm. Show how to place the string along the path to be measured; then stretch the string straight and measure it with the ruler. Using the string, have the student experiment measuring several curved objects (soup or pop cans, body parts, garbage can, etc.).

When measuring an object that is longer than the student's ruler, show the student how to add the ruler lengths together or use a measuring tape or metre stick.

Day 3**Day 3: Lesson 1**

The object of the exercise is for the student to realize that a ruler isn't needed to make an approximate length. Lengths can be measured against other objects, especially when the length of the other objects is known. This allows the student to construct or identify items of specific lengths by sight. The student can either use modelling clay or string to construct snakes of various lengths.

Day 3: Lesson 2

Perform the events with the student.

There are extension activities for Days 2 and 3.

Have the student do the assignment for Day 3 after completing the day's lessons.

Day 4**Day 4: Lesson 1**

If the student's ruler does not show decimetre marks, place a small piece of white tape on the 10 cm, 20 cm, and 30 cm marks to show decimetres.

Place the 10 cm base ten block or a 10 cm cube stick on the decimetre line. Have the student compare the line with the manipulative to reinforce the concept of the decimetre as 10 cm.

Day 4: Lesson 2

Since the student will not be making exact measurements when using decimetres, tell the student to round the measurement to the nearest ten. For example, if an object is 18 cm long, the student will round that to 20 cm, or 2 dm; if an object is 44 cm long, the student will round it to 40 cm, or 4 dm, etc. Practise rounding with the student and assist him or her in measuring the items.

Answers

- | | | |
|-------------|----------|------------|
| 1. a. 10 | d. 30 | g. 50 |
| b. 30 | e. 10 | h. 90 |
| c. 80 | f. 100 | i. 40 |
| 2. a. 10, 1 | d. 80, 8 | g. 30, 3 |
| b. 50, 5 | e. 40, 4 | h. 100, 10 |
| c. 10, 1 | f. 30, 3 | |

There are extension activities for Day 4.

Have the student do the assignment for Day 4 after completing the day's lessons.

Day 5**Day 5: Lesson 2**

Assist the student with measuring and cutting the decimetre strips. Ensure the student understands there are 10 dm in a metre, and 100 cm in a metre.

Day 5: Lesson 3

Have the student transpose the answers from the chart on Day 2, Lesson 4 to the new chart. Assist the student with measuring the same items in decimetres and metres. Some of the items cannot be measured using metres. Have the student explain why.

Have the student do the assignment for Day 5 after completing the day's lessons.

Day 6**Day 6: Lesson 3**

Discuss the unit of measurement used for each of the items listed with the student. Have the student come up with some measuring ideas of his or her own.

There are extension activities for Day 5 and Day 6.

Have the student do the assignment for Day 6 after completing the day's lessons.

Day 7**Day 7: Lesson 1**

Cut sheets of paper in half, enough to cover the top of the student's work table. Have these and the cards ready prior to the start of the lesson. (You may need two decks of cards if you are using playing cards.) Put the paper in the Student Folder, the cards in the Math Box, and have the newspaper sheets cut and ready.

When covering a surface, ensure the items you are covering it with do not overlap and that there are no spaces between them. Do not worry about the fit being exact. Students at this age do not need to work in fractions.

Day 7: Lesson 2

Discuss how it takes more smaller objects to cover an area than larger objects. For example, it takes about 20 dominoes to cover a sheet of paper, and only about 10 cards to cover the same paper. That is because the cards are larger than the dominoes and cover more space. Ensure the student understands this concept.

Day 8**Day 8: Lesson 2**

The student will be building different shapes using the same area. If you do not have pattern blocks (square, triangle, and rectangle shapes), cut out the ones in the Appendix. Ensure these are cut and ready to use before the start of the lesson. Put them in the Student Folder.

Have the student build four different shapes using squares, triangles, and rectangles. Explain to the student that each time they construct a different shape they are covering the same amount of space.

There are extension activities for Day 7 and Day 8.

Have the student do the assignment for Day 8 after completing the day's lessons.

Day 9**Day 9: Lesson 2**

You will need a margarine tub and yogurt or ice-cream container for this lesson. If you do not have these, prepare two similar containers but of different sizes for the student to use. Label the containers A and B with a felt pen or mark A and B on masking tape. The student should use a measuring cup or other small container as their measuring tool. Have the student count each cup of water put into the containers and keep a tally of the count.

Day 9: Lesson 3

Have five small containers—a juice box, a baby-food jar, a milk carton, a soup can, and a jam jar—and an ice-cream pail (or other large container) available for this lesson. The student should be careful when pouring water from the containers into the pail to ensure an accurate measurement.

Assist the student with filling in the chart.

There are extension activities for Day 9.

When the student finishes the activities on Day 9, direct him or her to the Student Survey and Student Checklist in the Assignment Booklet. The student may work on these alone or with your help. Go over the responses and discuss them with the student. Give additional instruction as needed to any of the concepts the student has indicated he or she needs help with.

Ensure that you complete the Home Instructor's Evaluation Checklist and Home Instructor's Feedback forms for Days 1 to 9. The Home Instructor's Feedback is to give any information you think may be helpful for the teacher to know.

Submit Assignment Booklet 6A for marking.

ASSIGNMENT BOOKLET 6A

Grade Two Mathematics
Module 6: Days 1–9

Home Instructor's Comments and Questions

Home Instructor's Signature

FOR HOME INSTRUCTOR USE (if label is missing or incorrect)

Student File Number:

Grading Scale

- A** – Very Satisfactory
- B** – Satisfactory
- C** – Needs Attention
- D** – Unsatisfactory

Apply Module Label Here

Name

Address

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correct course and module.*

FOR SCHOOL USE ONLY

Assigned Teacher:

Grading

Mathematics:

Neatness:

Date Assignment Booklet
Received:

Teacher's Comments

Teacher's Signature

Home Instructor: Keep this sheet when it is returned to you as a record of the student's progress.

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- Are all the assignments completed? If not, explain why.
- Has your work been reread to be sure the spelling and details are correct?
- Is the record form filled out and the correct module label attached?

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Module 6

Measure It

Assignment Booklet 6A



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Grade Two Mathematics
Module 6: Measure It
Assignment Booklet 6A
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Other	



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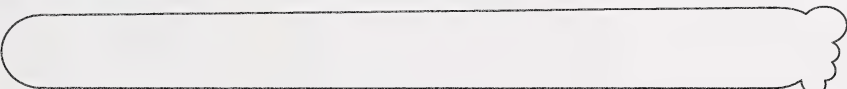
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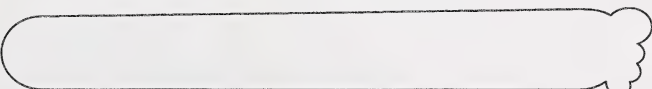
Measure each of these footprints. Colour the shortest one blue. Put an X on the longest footprint.

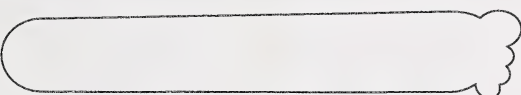
1.  _____ cm

 _____ cm

 _____ cm

2.  _____ cm

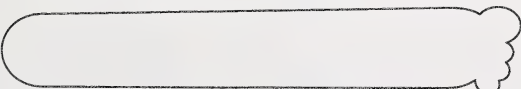
 _____ cm

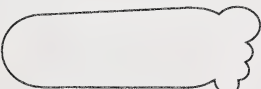
 _____ cm

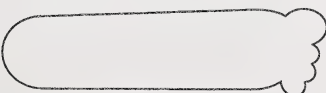
3.  _____ cm

 _____ cm

 _____ cm

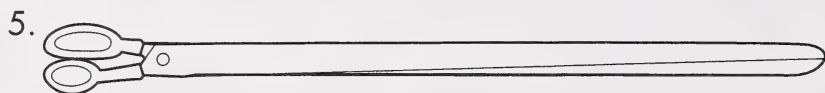
4.  _____ cm

 _____ cm

 _____ cm



Measure the length of the scissors. In each group of four, order them from smallest to largest. Write the numbers 1 to 4 in the circles. Number 1 will be the smallest.



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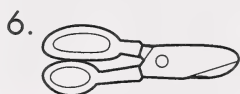
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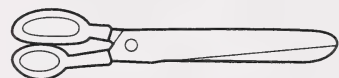
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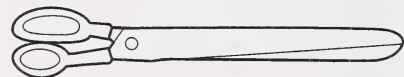
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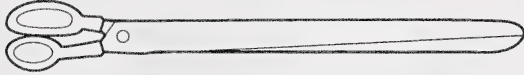


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7.



cm



cm



cm

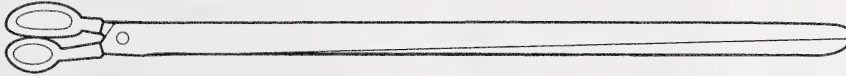


cm

8.



cm



cm



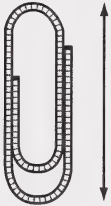

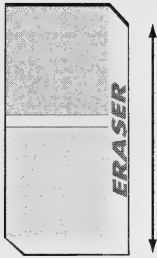
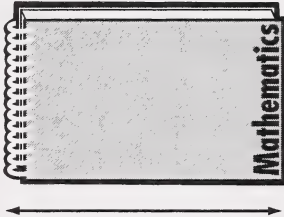

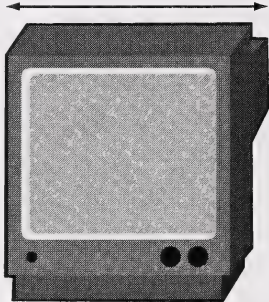
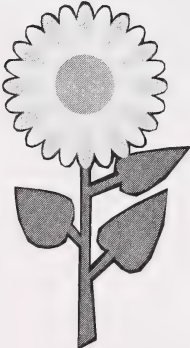
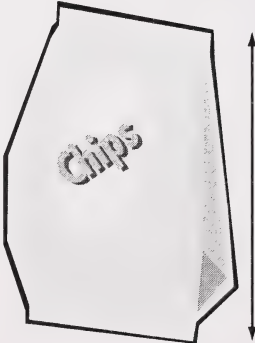

cm



cm



Look at the drawings. In real life each item shown is more than a decimetre or less than a decimetre. Circle less than or more than in each box.

<p>1.</p>  <p>less than more than</p>	<p>2.</p>  <p>less than more than</p>	<p>3.</p>  <p>less than more than</p>
<p>4.</p>  <p>less than more than</p>	<p>5.</p>  <p>less than more than</p>	<p>6.</p>  <p>less than more than</p>
<p>7.</p>  <p>less than more than</p>	<p>8.</p>  <p>less than more than</p>	<p>9.</p>  <p>less than more than</p>

Look at the drawings. In real life, each item shown is more than a metre or less than a metre. Circle less than or more than in each box.

1.



less than

more than

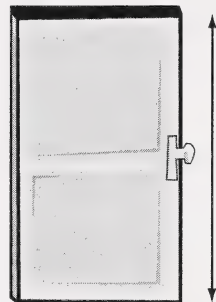
2.



less than

more than

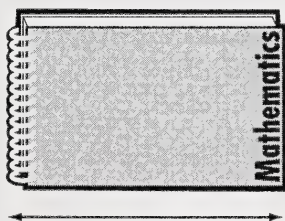
3.



less than

more than

4.



less than

more than

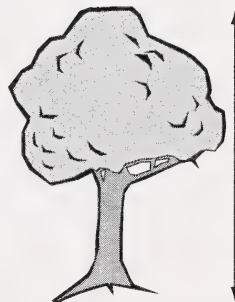
5.



less than

more than

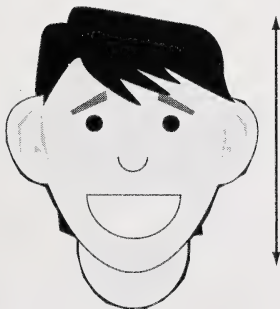
6.



less than

more than

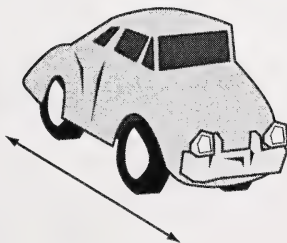
7.



less than

more than

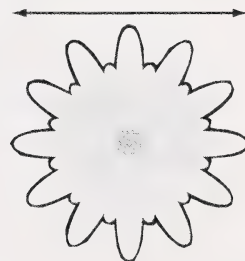
8.



less than

more than

9.



less than

more than



Circle the unit that is best to measure each of the following.

1. the length of a key

cm dm m

7. the width of a window

cm dm m

2. the length of a car

cm dm m

8. the distance around your head

cm dm m

3. the height of a door

cm dm m

9. the width of your hand

cm dm m

4. the distance around a house

cm dm m

10. the height of a tree

cm dm m

5. the distance from your chin to
your waist

cm dm m

11. the length of a crayon

cm dm m

6. the length of your arm

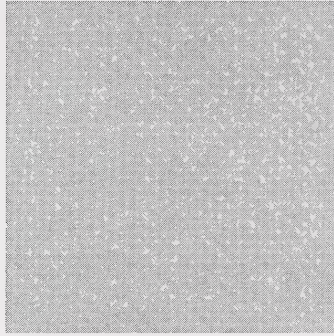
cm dm m

12. the width of your nose

cm dm m



1. Estimate how many small squares will cover the large square.



My estimate: small squares will cover the large square.

2. Use four squares each time to make four different shapes that cover the same amount of space. Draw the shapes in the box.



Student Survey

Days 1 to 9

Think about what you have learned in Days 1 to 9. Then answer these questions.

What did you find easy about Days 1 to 9?

List **three** things you learned about measuring in Days 1 to 9.



Assignment Booklet 6A

Is there something about measuring you would like to know more about?

Is there something about measuring you still need help with?

Student Checklist

Days 1 to 9

I know how to . . .	Put a check mark beside the things you can do.
1. choose the best unit (centimetres, decimetres, and metres) to measure the length of objects	
2. estimate and measure the length of objects using centimetres, decimetres, and metres	
3. estimate, measure, and record how much a container can hold	
4. use shapes to cover spaces	

Home Instructor's Evaluation Checklist

Days 1 to 9

Specific Outcomes/ Concepts Learned The student . . .	Has the student mastered the concept (yes or no)?
1. constructs items of specific lengths (cm, dm, m)	
2. selects the most appropriate standard (cm, dm, m) to measure a length	
3. estimates, measures, records, compares, and orders objects by length, height, and distance around, using standard units	
4. estimates, measures, records, and compares the area of shapes, using nonstandard units	
5. constructs a shape given a specific area in nonstandard units	
6. estimates, measures, records, compares, and orders the capacity of containers, using nonstandard units	

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or printed text on the page. A small, faint orange mark is visible near the left edge, about halfway down the page.